DEPARTMENT OF NATURAL RESOURCES

History of the Lake St. Clair Fisheries Research Station, 1966 - 2010

Mike Thomas, Research Biologist (retired) and Todd Wills, Area Station Manager
Email: willst@michigan.gov

The Lake St. Clair Great Lakes Station was constructed on a confined dredge disposal site at the mouth of the Clinton River and opened for business in 1974. In this photo, the Great Lakes Station (red roof) is visible in the background behind the lighter colored Macomb County Sheriff Marine Division Office.

Lake St. Clair Fisheries Research Station
Website: https://www.michigan.gov/dnr/managing-resources/fisheries/research/lk-st-clair

History of the Lake St. Clair Fisheries Research Station, 1966-2010

Preface:

From 1992 to 2016, it was my privilege to serve as a fisheries research biologist at the Lake St. Clair Fisheries Research Station (LSCFRS). During my time at the station, I learned that there was a rich history of fisheries research and assessment work that was largely undocumented by the standard agency reports or scientific journal publications. This history, often referred to as "institutional memory", existed mainly in the memories of station employees, in vessel logs, in old 35mm slides and prints, and sometimes in notes written along the crinkled and yellowed edges of old data sheets. In early 2010, Robert Haas, the founding station manager mentioned he was considering retirement. I immediately decided to record some of the unwritten history of fisheries research and assessment at the Lake St. Clair Station before Bob retired. So, beginning in 2010 a series of interviews were conducted with Bob (station manager), Ken Koster (technician), and Jack Hodge (boat captain). My purpose was to document some of the "institutional memory" of the history of fisheries assessment efforts by the Michigan Department of Natural Resources (DNR) on southern Lake Huron and Saginaw Bay, the St. Clair/Detroit River System, and Lake Erie, since the 1960's. We often consulted the cruise logs and visitor records kept by the captains of the R/V *Channel Cat*. In a few cases, official department memorandums or interoffice communications were found in old files that also provided historical perspective. Some parts of the narrative came from individuals who provided details of specific events they had experienced while working with Station personnel or on the research vessel. A few vintage photographs have been scanned and included. To provide some additional historical context, I've briefly summarized the changing conditions of the Great Lakes and the fisheries across the years. With my retirement, I am passing the torch to one of the other "old" guys at the station. It is my hope that this "report" will be updated periodically by Station crew members who have an interest in making sure that the past isn't forgotten. – *Mike Thomas*

The Beginning - 1966-1971:

By 1960, Great Lakes fish populations and the fisheries they supported had been decimated by degraded habitat, invasive species, and commercial overfishing. The invasive alewife was overabundant and massive die-offs ruined Michigan beaches. Industrial and municipal point-sources resulted in both chemical and nutrient pollution problems in many of the nearshore areas of the Great Lakes, particularly those near larger towns and cities. Even in connecting waters like the St. Mary's River and St. Clair/Detroit River, where huge daily flow volumes diluted the chemicals and nutrients dumped into the system, biological impairment was common and water clarity was reduced by abundant algae. By 1970, biologists and ecologists had officially declared Lake Erie "dead" due to the extreme level of pollution.

Prior to 1960, the State of Michigan did little to monitor or manage the fisheries of the Great Lakes which had historically been managed by federal agencies for commercial fish production. Once a successful control method for the destructive sea lamprey was developed in the early 1960's, the State undertook an effort to expand recreational fishing in Michigan's waters of the Great Lakes. Part of this effort included assessment of habitat and fish populations, while another part was the now famous stocking of Pacific salmon. In order to begin monitoring fish populations in the Michigan waters of the Great Lakes, Fisheries Division invested in personnel and infrastructure (vessels and facilities) by establishing four Great Lakes Stations (Marquette, Charlevoix, Alpena, and Mount Clemens).

In the mid-1960's, Steve Swan was the district fisheries biologist at the Pontiac District Office. The front office in Lansing instructed Steve to start a creel survey on Lake St. Clair in January

1966. Steve hired Warren Alward as the lead creel clerk for the survey, along with Lee Force and Robert Wojociechowski. In May 1966, Dr. Howard Tanner (Fisheries Chief and later, DNR director) hired Robert Haas, freshly graduated from the University of Michigan (UM), to lead DNR fisheries work on Lake St. Clair (under the Pontiac District). This new effort on Lake St. Clair coincided with the germination of the Michigan DNR Great Lakes program. To start with, Bob worked out of his house in New Baltimore supervising the clerks working on the creel survey. Later in 1966, Bob moved into an office at Schmid Marina in New Baltimore. Bob scrounged up some trap nets and a work barge (powered with an old outboard motor) for netting work on the lake. The creel survey continued through 1967, and possibly into 1968, and included both the open water and ice fishery. During the winter, the creel survey crew hauled a big old wooden shanty out onto the ice by Fairhaven and used it for storing equipment and data sheets.

In 1967, Bob borrowed a big Thunderbird (whaler-like hull) boat from the Charlevoix Great Lakes Station to use for netting work. Fisheries Division apparently didn't want Bob running the bigger boat, so a Law Enforcement Division (LED) boat captain was loaned to Lake St. Clair to run the Thunderbird. The captain was Chuck Forge (aka "Tarpots"). Chuck was a commercial law enforcement officer/boat captain, and actually was the captain on the patrol boat *Chinook* when it was a LED commercial fishery patrol boat (the *Chinook* eventually became the Fisheries Division survey vessel for Lake Huron). Like many future Fisheries Division research vessel captains, Chuck Forge had a family history that included commercial fishing (Saginaw Bay - Bay Port area).

In 1967, Bob spent part of the summer working on Lake Erie with the Ohio DNR and actually stayed on their vessel. They spent part of the summer trawling in Michigan waters of the lake. One time, while running to a station, they lost the trawl off the back of the vessel and didn't realize it until they arrived at the station and then found the cables, doors, and trawl were gone. After completing Lake Erie survey work in late summer, Bob couldn't get back home through Detroit due to the 12th Street Riot. So, he had to navigate a circuitous route through Ann Arbor and Pontiac to get home to New Baltimore. Creel clerk Bob Wojociechowski was in the National Guard and was called up to help quell the violence in Detroit during the social unrest.

Later in 1967, Bob Haas was commercial fish sampling on Lake Erie on a trap net boat (probably with the Laginess fishery), and met Harlan Maybee, who was visiting the commercial fisherman. Harlan asked Bob if he wanted to buy a boat. It turned out that Harlan, who was then 60 years old, built Lake Erie trap net boats, all by himself, near Toledo. At the time Bob met him, Harlan had a hull almost finished (Photo 1, next page) for a commercial fisherman who had backed out of the deal. Bob promptly checked it out and ended up buying the hull for $8,000. The vessel was not yet powered, so Bob arranged to purchase the engines directly from Detroit Diesel, and then Harlan installed them. Harlan strongly recommended having the vessel documented by the US Coast Guard, which required a unique name. Bob recalled that at this same time, Fisheries Division was heavily involved in trap and transfer of channel catfish from Anchor Bay to Holloway Reservoir and some impoundments on the Kalamazoo River. Apparently, this work was the inspiration for the name of the new vessel, R/V *Channel Cat*. Michigan DNR took possession of the R/V *Channel Cat* late in the summer of 1968. Additional work to outfit the vessel for trawling (dual warp set-up) was completed in fall of 1968.

In 1969, a gill net survey was started in Lake Erie with the new R/V *Channel Cat* as the work platform. Catches were amazingly low.

Photo 1: This 1967 photo shows the newly built Lake Erie trap net hull that would eventually become the R/V *Channel Cat. Note the vessel has not yet been powered; no shafts, skegs, screws, or engines installed. The transom was removed to facilitate trawling and trap netting.*

One lift in April, near Monroe, resulted in only 2 perch and 1 walleye caught in 1,200' of 15' deep gill net. Another set just south of the River Raisin channel caught 2 walleye and 1 perch. Bob remembered that Lake Erie biologists from other jurisdictions were very concerned that walleye were in danger of going extinct in Lake Erie at this time. This was the time period when many environmentalists considered Lake Erie to be "dead" due to terrible water quality problems.

In 1969, research biologist John Williams came over to Lake St. Clair from the Hastings Research Station and worked with Bob on a muskellunge survey on Lake St. Clair. Randy Eshenroder, a biologist working at the Alpena Great Lakes Station, also came down to work with Bob on a trawl survey on Lake St. Clair. Bob captained the *Channel Cat* until 1970, when Chuck Forge was permanently transferred to Fisheries Division as a boat captain.

In 1970, mercury contamination was discovered in the St. Clair River and health officials closed down the fishery in the St. Clair River, Lake St. Clair, Detroit River, and Lake Erie. The source of the contamination was traced back to the petrochemical complex on the St. Clair River near Sarnia, Ontario. Fishing on these waters was immediately banned by Governor Milliken to protect the public from mercury poisoning, and conservation officers posted "No Fishing" signs along the lake. Bob remembered that there was basically no enforcement of the closure, so people continued to fish and some still kept the fish and ate them. There was no change in DNR survey programs as a result of the mercury contamination. During summer of 1970, the mooring for the *Channel Cat* was moved from Schmid Marina in New Baltimore to Minnick's Landing for the summer, and then to the Black Creek (Metro Beach) in the fall. Mel Sadecki was hired as a technician with the Lake St. Clair unit in 1970. Mel would eventually become the Superintendent of Hatcheries for the State of Idaho.

In 1970, the *Channel Cat* made its first trip to Saginaw Bay. In fact, the vessel traveled to Saginaw Bay for both a summer and fall survey. The surveys included trap netting and trawling. The crew

camped at Sleeper State Park near Port Austin. Bill Bryant transferred from a district office position to fill a biologist position at Lake St. Clair and started working on the *Channel Cat.* Prior to working for Fisheries Division, Bill worked for Water Bureau on river biological sampling.

During the early 70's, the "office" for the Lake St. Clair Station moved from Schmid Marina in New Baltimore to the Port Huron Field Office. After about a year, the office moved again to a rented building on Irwin Drive in Harrison Township, off North River Road near I-94.

April 1971 found the *Channel Cat* working on a salmon gill net survey on southern Lake Huron. Bob remembered there was still floe ice drifting around at the time of the survey. Nets were fished out of Port Sanilac, Forrestville, and Harbor Beach. The gear caught many coho. Lots of Fish Division staff helped out on the Lake Huron survey including Bill Rupright (eventually tech supervisor at the Jackson District Office), Dave Weaver (district biologist and later Regional Biologist and Assistant Chief), and Dave Havens (Fisheries Division net builder). All worked on the vessel in May. Dave Havens would eventually build the large trap nets that have been used by Lake St. Clair staff for surveys from the mid-1970's through present. Other visitors during the salmon survey included Tom Opre (Detroit Free Press outdoor writer) and Al Lesch (one of the early charter captains).

During July, while the *Channel Cat* was docked at Port Austin after survey work on Saginaw Bay, Lawrence Shubel (a Port Austin resident) walked out on the pier to see what was up with the new DNR boat. It turned out that Larry had both a fisheries degree and research experience. Bob offered Larry a job on the spot, and Larry accepted and started working on the vessel right away.

The mooring for the *Channel Cat* moved from the Black Creek to the Fire Dock at the new Harley Ensign boat access site in July 1971. The vessel conducted gill net surveys on Lake St. Clair in September and Saginaw Bay in October. R. Eshenroder (biologist) and Bill Cross (boat captain) from the Alpena Great Lakes Station were both on board for the Saginaw Bay survey work. The survey included fishing an 800-hook setline for catfish off Bay City as well as trawling and gillnetting in both Saginaw Bay and in Lake Huron. The trawling portion of this survey would be continued each fall through present. Fish community data collected with this survey would form the basis for ecological understanding of the changing fish community in the Bay over the next 4 decades.

After returning to Lake St. Clair, the vessel headed to Lake Erie for a fall gill net survey which started in late October and ran into early November. The nets caught lots of carp, perch, and shad. Bob remembers there was snow and ice on the vessel's deck while lifting the nets. The survey concluded on Nov. 10th, and the vessel returned to Lake St. Clair for a survey that ran from Nov. 12th to Nov. 17th and included both trawling and gill nets. The *Channel Cat* log indicates lots of weeds and moss were caught in the trawls, while gill nets produced lots of walleye, catfish, and carp.

1972-1974:

In 1972, the Federal Water Pollution Control Act of 1948 was amended and became known as the Clean Water Act. This landmark law greatly accelerated the control of point sources of pollution around the Great Lakes, a major step towards recovery of degraded habitats and fish populations in those waters. The stage was set for recovery to begin in places like Saginaw Bay, the St. Clair-Detroit River System, and Lake Erie. The fledgling Pacific salmon stocking program was generating excitement for anglers on the upper Great Lakes and was expanding. Great Lakes water levels, which were below the long-term average through most of the 1960's, increased to levels well above the long-term average in the 1970's.

The 1972 field season started with salmonid assessment off the Thumb in early May. Bob Haas recalled that this work was a nightmare. The salmonid assessment protocol included bottom, surface, and deep gill nets. The *Channel Cat* conducted gill net sampling near Port Sanilac and Port Crescent, as well as trawling east of Port Hope. Later in May, the *Channel Cat* served as a stocking platform for walleye fry flown in from Oneida Lake, New York. A total of 254 boxes of walleye fry were stocked in the Wildfowl Bay area as part of a walleye re-establishment effort for Saginaw Bay.

By late May, the *Channel Cat* was back at Lake St. Clair and fishing ten-foot-deep trap nets in Anchor Bay in 10 feet of water. Lots of muskies were caught in the bottom-to-surface sets, but there was lots of trouble with boats damaging the nets too. Records indicate muskellunge eggs were collected for an experimental muskie rearing program. After the trap net survey in Lake St. Clair, the *Channel Cat* returned to southern Lake Huron for gill net and trawl surveys in late June. Muskellunge were stocked in Lake St. Clair during late summer using the *Channel Cat* as the stocking platform. The fingerlings originated from either Lake St. Clair or Indian River muskellunge captured earlier in the year. Gene Schabath, a reporter with the Detroit News was on board for the stocking. The fingerlings were marked by removing fins.

The remainder of the 1972 field season included summer trawling in Saginaw Bay, trap netting and trawling in Lake Erie in August (lots of small perch and gear damage from snags), trawling in Lake St. Clair in September, trawling and gill netting in September in Lake Huron (off the thumb), trawling and gill netting in Saginaw Bay in October, and trawling in Lake St. Clair in November. The vessel was hauled out on Nov. 21.

By 1973, assessment netting surveys had been established on Lake Erie, Lake St. Clair, and southern Lake Huron (including Saginaw Bay). The 1973 field season started in early April with gill netting and trawling on Lake St. Clair, followed by gill netting in Lake Erie later in the month. Walleye abundance in Lake Erie remained low, with single digit walleye catches for 1,200' of gill net, common place. The vessel returned to Lake St. Clair in mid-May and a gill net survey off the Grosse Pointe Yacht Club caught lots of perch and walleye. Bob recalls the Thames River walleye stock was doing well in the early 70's. The late May/early June trap netting in Anchor Bay continued with the 10' deep nets. Records show rainbow trout and chinook salmon were caught in the trap nets. Big channel catfish were also common. One lift included 204 catfish in one net set and it took all day to empty the net. Bob initiated a muskie tagging project to investigate muskellunge movement and survival.

Summer 1973 included a gill net and trawl survey on southern Lake Huron in July. The *Channel Cat* started in Port Huron, then moved up the lake to Port Sanilac, Harbor Beach, Port Austin, and around to Bayport. Trap netting in Saginaw Bay in early August caught lots of catfish and white crappies. By late August, the vessel was back at Lake St. Clair and conducted gill netting and trawling in Anchor Bay – this work included the first record of a sturgeon being caught during a Lake St. Clair Great Lakes Station survey.

Fall sampling took the *Channel Cat* to Lake Erie in September for gill netting, then up to Saginaw Bay for gill netting in early October. The field season wrapped up with gill netting and trawling in Lake St. Clair in early November. The *Channel Cat* was hauled out on Nov. 14th.

A Fisheries Division memo from December 1973 described a new Urban Fishing Initiative and specified the Station mission to include expansion and improvement of metro fishing opportunities, besides continuing stock assessment programs. This emphasis never materialized.

Field sampling in 1974 started with work in Lake Erie in April. The *Channel Cat* moored at a new dock in the Clinton River (Photo 2, below) on May 13, after limping back from Lake Erie on one engine after a transmission went out under the Ambassador Bridge. Recurring transmission problems were a big pain with the vessel at this time. The crew had to remove the transmission, haul it to Indiana, and have it rebuilt several times, every time as they pulled away from the dock after putting it back together it would blow up again. The problem turned out to be the transmission cooler was full of steel particles and needed to be flushed. Once the cooler was flushed clean, the problems were gone.

Photo 2: The R/V *Channel Cat is moored at the original dock on the Clinton River at the new Lake St. Clair Fisheries Research Station. Note the vessel is only 36' long, the aft cabin "wall" is canvas (rolled-up in this photo). In this photo, Bill Bryant and Chuck Forge are visible on the deck of the vessel, along with an assortment of fish tubs. At least some of the plastic yellow tubs, lime green tubs, and dark green fiberglass tubs were still in use at the Lake St. Clair station in 2016.*

The new Lake St. Clair Great Lakes Station building at the Harley Ensign boat access site opened and staff moved in during July 1974. The new station hosted a meeting of the crews from all of the Michigan DNR Great Lakes stations for 2 days in July.

The station included Parks and Recreation staff from 1974 until about 1980 when the Parks and Recreation Field Office on Old North River Road at Bridgeview was opened. Parks and Recreation staff used the small garage and also kept cash on-site in a large safe. The station was burglarized twice in the 1970's. The first time there was not much damage. However, the second time (probably in 1978 or 1979) was a major mess. The burglars used a cutting torch to try and open the Parks and Recreation safe (used for night deposit for fees collected at the access site) and filled the building with soot, emptied drawers, and broke stuff. State police investigated the break-in and determined it was an inside job and one of the Parks and Recreation Division workers was implicated.

The *Channel Cat* was in Saginaw Bay in late July and August 1974 for trap netting. The catch included loads of channel catfish and white crappies. After the survey the crew pulled the nets, mended them, and then sent them back to the Station on a flatbed stake truck.

A UM wildlife graduate student, Steve Dawson, stayed at the Station while conducting field research on duck food habits during the fall 1974 waterfowl season. The station had facilities that could serve as a temporary residence for one or two workers at a time. The kitchen included a refrigerator and stove. The men's restroom included a shower and bunk beds were kept in the room that would eventually become the router/server room in the early 1990's.

Originally, the *Channel Cat* was fitted with a portable gas-powered gill net lifter. In 1974, it was converted to hydraulics, but developed problems with slipping.

The annual station report prepared in 1974 detailed results of ongoing tagging studies for muskellunge and smallmouth bass in Lake St. Clair. The report highlighted concerns about low survival of smallmouth bass in Lake St. Clair. A yield-per-recruit analyses supported an increase from the 10" minimum size limit to a 12" minimum size limit (the statewide bass minimum size limit was raised to 12" in 1976).

1975-1979:

Great Lakes water quality continued to improve under the new Clean Water Act, particularly in shallow nearshore areas near pollution point-sources. The salmon program expanded and generated a large increase in recreational fishing on lakes Michigan and Huron. The Saginaw Bay fishery was largely a perch fishery as the walleye population remained at a low level. Lake Erie walleye were beginning to show signs of a recovery. Water levels in Lake Huron, St. Clair, and Erie remained above average through the 70's.

For the last half of the 1970's, the field season would start in early April and run through November. The R/V *Channel Cat* made the transit from her home port on Lake St. Clair to Saginaw Bay and Lake Erie several times each season. Most of the survey work was conducted without any notable incidents, but occasionally vessel logs highlighted noteworthy events.

While trap netting in southern Lake Huron in July 1975, a sudden storm capsized a sailboat. Bob went into the water to help get the sailboat crew to safety. Later during the summer of 1975, the *Channel Cat* met up with an Ohio DNR vessel at Put-In-Bay for a "meeting" and overnight stay.

Late summer and fall trap netting on Lake St. Clair in 1975 was complicated by heavy algae fouling of the nets. Biologist Bill Bryant fell off the open transom of the *Channel Cat* on Lake St. Clair, starting a tradition that would be carried on in the future by at least one other Station biologist.

In early November 1975, the R/V *Channel Cat* was hauled out at Krueger's Marina in Alpena and trailered to the DNR Gaylord Repair shop for lengthening (Photo 3, next page). The expansion design work and actual cutting and reconstruction of the keel and hull plates was performed by Harlan Maybee (the original builder of the vessel) and Leonard McDonald, the Regional Commercial Fish Law Supervisor. Archie Reeves, Forestry Division, did a lot of the welding. Bob Barber, a boat expert with Research Section, was also involved in the project. A section about 10 feet long was added to the boat just behind the cabin. This allowed the engine hatches to be moved rearward, behind the cabin, and then the cabin was enclosed with a rear wall. This greatly reduced the engine noise inside the wheelhouse and allowed the addition of storage cabinets and countertops inside the cabin. There was also much more below-deck storage space as well. The

cost of materials for the expansion was around $60,000. The project was completed by mid-April and a big celebration party was held at the Alpena Yacht Club. The *Channel Cat* was back in service on June 7, 1976.

Photo 3: The newly lengthened (from 36' to 46') R/V *Channel Cat as it is loaded onto a flatbed DNR truck at the Gaylord field office. The vessel was freshly painted after the extensive welding completed at the shop. Note the canopy over the engine hatches and rear deck was not yet constructed.*

During July 1976, trap nets were fished north of Lexington for a walleye tagging project. One of the nets was not fishing well, so crew members Olson and Pacic dove on the net and found a boulder on the wing of the trap net. During August, the *Channel Cat* served as a platform for a big Fisheries Division "cruise". After meeting up with the *Chinook* north of the Charity Islands, a 3 hour on-water fish fry ensued.

During the November 1976 trap net survey on Lake St. Clair, catches of channel catfish were extraordinary. On November 1, two of the lifts contained over 500 channel catfish each. On November 2, there were over 700 channel catfish in 2 lifts. On November 3, there were so many catfish in one net, that it was impossible to lift the net. Eventually, the crew had to cut a hole in net #7 and counted 2,606 catfish as they swam out of the emergency exit.

While setting gill nets off Port Sanilac on May 10th, 1977, the *Channel Cat* experienced a close call with an upbound freighter. Later that summer, while trap netting at Port Sanilac in late June, the *Channel Cat* towed a rowboat containing 2 young boys back to shore.

On July 29th, 1977, while gill netting off Port Austin, the *Channel Cat* crew brought up a missile in the net. The vessel hauled the missile to the dock and called the authorities. The missile oozed and bubbled while sitting on the vessel's deck. Air Force staff eventually arrived and took possession of the missile. Deckhand Greg Olson theorized that the net pulled the missile off a plane that had been lost in Lake Huron sometime in the past.

Biologist-in-charge Bob Haas spent much of 1977 working in Lansing. Bob was part of a team preparing for negotiations with the tribes over treaty fishing rights in Michigan's waters of the Great Lakes. The dispute ended up in federal court and was settled years later.

In 1978, Jack Hodge was hired under the Young Adult Conservation Corps (YACC) program. Jack would end up working at the Station for the next 33.5 years. He would work his way up the ladder as a boat assistant, then assistant boat captain, and finally as boat captain from 1998 through his retirement on April 1, 2012. While still a temporary worker, Jack was given the task of driving the flatbed truck full of wet trap nets down to the Lake St. Clair Station after the Saginaw Bay trap net survey was completed. Due to poor weight distribution, the front wheels actually came off the ground while he was driving down the highway. Since he had no steering, he ended up going off the road into the median (fortunately, no one was hurt).

In April and May 1978, a trap net survey was conducted on Lake Erie near Monroe. This survey would become an annual event and result in the tagging of tens of thousands of walleyes over the next 3 decades. Eventually, the walleye tagging project would become an interagency effort with fish tagged, released, and recovered all across the lake. Information gathered from the mark-recapture data would support scientific management of walleye in Lake Erie for the next 30+ years.

On July 6th, 1978, while in transit to Port Sanilac, the *Channel Cat* had an oil line blow and had to shut down. At the Coast Guard station, 8 quarts of oil were pumped from the bilge. In August 1978, new transmissions were installed and tested on the *Channel Cat*.

Bob Haas recalled standing on the shoreline of the Detroit River while doing a creel survey in the 1970's and watching blood, cattle skins, and chicken parts drifting past from the slaughterhouse effluent on the upper Detroit River – some place near the old cement plants by Belle Isle. During early August 1978, the *Channel Cat* worked on the upper Detroit River. One specific task was to check the DuBois sewer outfall for slaughterhouse effluent (mainly blood and hides). Gill nets set in the upper Detroit River in late 1978 caught lots of algae and other unpleasant stuff, but no fish.

Also in 1978, a fall index gill net survey was initiated on Lake Erie. This survey was designed to measure the abundance of walleye yearlings, so that managers could predict year-class strength for the age 2 cohort entering the fishery in the coming year. This survey would also become an interagency effort with Ohio and Ontario also participating. The Michigan portion of the survey would be continued annually through present.

The 1979 cruise schedule for the *Channel Cat* included survey work from April 10 (trawling on Lake St. Clair) through November 2 (trawling and gill netting at Lake Erie). The vessel and crew were on travel status for 98 days of the 201-day field sampling season.

In April 1979 the *Channel Cat* was trap netting at Monroe. There were several Conservation Officers on board to collect fish fillets (walleye and perch) to use for their annual spring fish fry for local magistrates. This was common practice that eventually was terminated by upper levels of the department.

Gill nets were set in Lake Huron, off Port Sanilac, in late July 1979 with some sites as far as 9 miles offshore. In those days, there was no GPS so relocating the nets the next day, that far offshore, was challenging and sometimes time consuming.

During the summer of 1979 a new faculty member at UM, Jim Diana, called Bob Haas and told him he was planning to set gill nets in Lake St. Clair to catch northern pike for a study he had underway. Bob strongly advised Jim not to try and fish gill nets in Lake St. Clair during the summer, but Jim thought he knew better. As Jim tells it, he set a gill net in Anchor Bay, and within

half an hour, a cigarette boat ran through the net and cut it in half. Undeterred, Jim pulled the net, tied it back together and tried again. In a short time, another boat tore through the net. Finally, he tied it together for a third time, and this time anchored his boat at one end of the net. Sure enough, another large speed boat tore through the net. Jim was convinced the speed boats were actually attracted to the net markers rather than repelled! Jim did eventually obtain some northern pike samples from the Ontario waters of the lake where boat traffic was less intense.

Trawl comparison experiments were conducted in August 1979 at Oscoda. Trawls of different sizes (33' headrope, 40' headrope, and 50' headrope) were fished by the *Channel Cat* with the R/V *Chinook* working alongside – testing substrate. The R/V *Canvasback* (Alpena skiff) was used in an effort to measure the opening of the trawl. Greg Olsen was diving on the trawl while the gear was underway, and Bob was driving the skiff over the trawl and measuring depth to the top of the net.

On September 27, 1979, while trawling, there was an electrical fire on the *Channel Cat*. The engines would not shut down and kept starting up on their own. Greg Olson went down below and had to disconnect the batteries to stop the fire. The engines were rewired and the port alternator fixed on October 2nd. Trawling resumed on Saginaw Bay on October 3rd.

The fall gill net survey on Lake Erie in 1979 was conducted without a hydraulic lifter. This was the first time gill nets were lifted by hand on the *Channel Cat*. The practice of manually lifting gill nets would continue thru present.

1980-85:

By 1980, the benefits of the Clean Water Act were beginning to become apparent with improving water quality and associated biological recovery. The salmon stocking program had successfully created an exciting open water fishery in Lake Huron. Walleye recovery was underway in Lake Erie with a strong 1977 year-class maturing and ready to further boost recruitment. At Saginaw Bay, walleye recovery was in its infancy as an extensive walleye rearing program was just getting started. Saginaw Bay yellow perch were abundant, but slow growth and poor survival resulted in a population dominated by small fish.

The *Channel Cat* was launched on April 10th, 1980 and headed to Lake Erie for the spring trap net survey and walleye tagging. Yellow perch were very abundant in the trap nets, with 4,800 perch caught in one lift! The vessel returned for the trap net survey on Lake St. Clair on May 15th. Mike Langworthy was hired (laborer) and started work on May 16th. Trap netting on Lake St. Clair ran through June 10th.

On July 28th, the *Channel Cat* headed to Lexington for a trap net survey. Six trap nets were set off Lexington to tag walleye from southern Lake Huron. This was part of an effort to better document the movement of walleye between Lake Erie and Lake Huron through the connecting waters. Catches of both walleye and yellow perch were good. The vessel returned to the Clinton River on August 28th.

The *Channel Cat* headed to Saginaw Bay for the fall trawl survey on Sept. 29th, returned to the Clinton River on Oct. 9th, and then departed for the fall Lake Erie gill net survey on Oct. 14th. The vessel was back at the dock on Oct. 23 and hauled out for the winter on Nov. 18th.

In addition to the "standard" surveys which had been established in Saginaw Bay (fall trawl survey), Lake St. Clair (spring trap net survey), and Lake Erie (spring trap net survey and fall gill net survey), a new 2-year walleye diet study was conducted on Lake Erie during the field seasons

of 1981 and 1982. Field sampling for this study involved trawling and gillnetting for 10 days straight, once a month from April thru October. Each sampling period included at least one 24-hour sampling effort with 4 six-hour shifts. An experimental "hooded" trawl was used to catch adult walleye for diet samples. This trawl had a panel on the top that helped increase adult walleye catch rates. Ellen Pikitch was an Indiana University doctoral student working on the study (Ellen would eventually become the executive director of the Institute for Ocean Conservation Science at Stony Brook University). The monthly 10-day sampling effort for the diet study, plus the "standard" surveys, resulted in the *Channel Cat* crew spending a large portion of the field season on the road, away from home and family. Stories of the partying and carousing at Monroe, by the crew, during the feeding survey sampling periods would be retold and enjoyed by new crew members for years into the future.

Channel Cat logs indicate that yellow perch catches remained very high in the Lake Erie trap net surveys in 1981 and 1982. A few sauger were also caught in the trap net survey and noted in the logs both years. Diet survey sampling sometimes resulted in heavy catches of gizzard shad, never a pleasant situation. Swarms of midges were horribly annoying during the night sampling periods.

The *Channel Cat* logs contain several notes about ongoing issues with net tampering and damage during the spring trap net survey on Anchor Bay. The survey was in June during both years. Eventually, the frequency of negative interactions between the trap net gear and recreational boaters would result in the termination of this survey.

In 1981, Ernie Kafcas was hired by Wildlife Division as a wildlife biologist and assigned to the Lake St. Clair Great Lakes Station. Ernie was the first Wildlife Division employee housed at the station. Ernie would remain in this position until his retirement on January 1, 2011.

Also in 1981, Fisheries Division underwent a reorganization that included reassigning technicians from research to the management units. Al Sutton was permanently reassigned from his position at the Institute for Fisheries Research (IFR) in Ann Arbor, to the Lake St. Clair Great Lakes Station. At this time, the Great Lakes Stations were considered part of the management branch of Fisheries Division, not research facilities. Al commuted from Ann Arbor to Mt. Clemens until 1985, when a new technician position at the IFR became available and he returned to work there (permanently). Sometime in the early 1980's, Fisheries Division reorganized and the Great Lakes Stations were transferred from the management section to the research section. After this change, the "Great Lakes Stations" were renamed to "Fisheries Research Stations".

On July 8th, 1981, a large group of Region III (southern Lower Peninsula) fisheries biologists took a tour of the Detroit River on the *Channel Cat*. The list of passengers included Don Nelson, Russ Lincoln, Dave Weaver, Ron Spitler, John Trimberger, Dave Smith, Dave Johnson, Bill Deephouse, Ray Shepherd, Bill Mason, and Ken Dodge. The vessel moored at Cobo Hall, and the group went to lunch at a restaurant within walking distance of the river. Captain Shubel stayed with the boat for security reasons.

Bob made arrangements with a local commercial fisherman (Peterson) at Monroe for the *Channel Cat* to dock at his fish house (quonset hut) on the River Raisin. This included space for picking nets and working up fish during the monthly walleye diet sampling periods. Peterson also commercially harvested snapping turtles. While processing fish samples at the fish house, the crew witnessed the details of turtle processing.

During this time period, a small work vessel, nicknamed "The Weaver-craft" was used by station personnel for various activities on Lake St. Clair and Lake Erie, including on-water creel surveys.

Once while Bob was running the Weaver-craft, the fuel hose blew and the boat filled up with gasoline! Another time, Jack Hodge was conducting an on-water creel survey on Lake Erie with Craig Gedelian and had to run it up on the beach to keep from sinking during a big storm.

In December 1981, Bob Haas proposed establishing new combined yellow perch and walleye index surveys on both Saginaw Bay and Lake Erie that would include concurrent sampling with both 33' headrope bottom trawls and index gill nets. The cost estimate for the 10-day survey on Saginaw Bay, including salaries (with fringes) for a 4-man crew, travel costs, boat fuel, oil, ice, etc., was $6,962. The Lake Erie costs for the survey were estimated at $6,762. Total costs including both sampling cruises, lab work at the station (scale pressing, scale aging, net construction and repair) and report writing were estimated at $22,851. The proposal was not funded due to budget troubles.

During 1982, the State of Michigan budget was in bad shape. As a result, the Fisheries Division budget was trimmed and lay-offs were made. On June 24, Jack Hodge was laid off. The 1982 cruise schedule for the *Channel Cat* reflected the poor budget with the field season trimmed down to 179 days and the crew only spending 80 days on travel status.

The State and Fisheries Division budget problems continued in 1983. Fortunately, the US Army Corps of Engineers (USACOE) contracted DNR Fisheries to conduct a winter navigation impact study on the St. Clair River – Lake St. Clair – Detroit River waterway. The "Winter Navigation Study" included sampling the fish community with nets, as well as measuring the recreational harvest of fish from the connecting waters. The netting portion of the study required sampling fish weekly, throughout the open water season, with small trap nets, from March 1983 to March 1985. Recreational harvest, including the shore fishery, was measured with a creel survey design that required 6 clerks for on-site interviews of boat and shore anglers, and aerial flights for boat counts. The creel survey began in April 1983 and continued through March 1985.

The funds from the USACOE saved the budget for the LSCFRS and helped out some other units too. Jack Hodge was recalled from lay-off. Danny Manz joined the crew. Ken Koster joined the staff (recalled from the Parks and Recreation Division lay-off list) as a technician. Ken would continue to serve as a fisheries technician at the station until his retirement on January 1, 2011. Several Fisheries Division employees from other units were at least partially funded under this project and helped with field work, data compilation, and analyses. Jake Snyder, Tim Walker, Kelley Smith, Merle Galbraith, and Andy Nuhfer were among those who worked extensively on the surveys, data analyses, and final report preparation. As a result of the extensive netting and creel survey efforts required for the Winter Navigation Study, a large number of short-term workers were hired. Several term data-entry clerks and lab assistants were also hired. The creel survey was largely staffed by workers hired off layout lists (bad economy and state layoffs), with most from Human Services. Bob recalled they interviewed lots of candidates to find a few good ones.

Two heavy-duty aluminum 18' flat bottomed work boats (with trailers) were purchased to conduct the Winter Navigation Study trap net sampling. The boats were built by the Schafer Boat Company in L'Anse, Michigan. These boats were powered by 55 HP outboards with tiller-steering. The work boat crews conducted weekly trap net surveys at sites on the St. Clair River, Lake St. Clair, and the Detroit River from March 1983, through March 1985, including winter months when ice conditions allowed. This was brutal and sometimes dangerous work. The trap net crews initially loaded the Schafers with 4 traps, 16 anchors, lines, flags and crew, but soon determined conditions on the connecting waters often required more freeboard, so fewer nets and anchors were loaded on rough days. The trap net crews had trouble with duck hunters cutting off the orange flags on the staff buoys at the Powder House Island site (lower Detroit River), apparently

because the orange flags were scaring away the ducks. When the white bass spawned in June, the trap net crews would fish near the power plant on lunch break with seat cushions hung over the gunwales to cover the DNR stickers (undercover fishing). Danny Manz, the biggest crew member, nearly jumped out of one of the Schafer boats at the Hole-in-the-wall site in the lower Detroit River when a large American eel slithered out of the trap net onto the deck.

During this period, the "standard" trap net surveys on Lake St. Clair and Lake Erie were conducted as normally scheduled. However, due to conflicts for vessel time, some of the other standard surveys were conducted by partners. The annual Lake Erie fall gill net survey was conducted by the Sandusky US Fish and Wildlife office in 1983. The annual Saginaw Bay fall trawl surveys in 1983, 1984, and 1985 were conducted by the R/V *Chinook* with LSCFRS staff assisting on the Alpena vessel.

R/V *Channel Cat* logs indicate that sauger were still a relatively common catch during the spring trap net survey on Lake Erie in 1983-85 (within 10 years, sauger would be practically extinct from this survey). Yellow perch catches in the trap net survey also continued to be very large. During the trap net survey on Lake Erie in April 1984 there was a big storm that churned up the lake. The wave energy ended up filling the nets with debris, including lots of dead fish, and the nets collapsed from the weight of the debris. While running one of the trap net leads to clear the debris, Craig Gedelian nearly sank the skiff.

On June 11, 1984, the *Channel Cat* was the platform for a tour of the federal Superfund sites on the Detroit River. Passengers on the tour included DNR Director Skoog and other Lansing dignitaries. During the tour, Captain Shubel had a close call as the vessel nearly grounded off Turkey Island in Canadian waters of the lower Detroit River. As planned, the tour was a one-way trip as the passengers were dropped off at Riverside Launch in Trenton where vehicles were waiting. The vessel was back to the Clinton River dock at 7pm.

Also in 1984, Bob Haas and Tom Todd (USGS Great Lakes Science Center) undertook a study of walleye genetics in lakes Huron, St. Clair, and Erie. Walleye samples were collected from numerous spawning populations across this area and also included monthly samples from the St. Clair system. Tom ran the electrophoresis analyses in his lab in Ann Arbor at the Great Lakes Science Center.

In 1985, Bob Haas and Andy Nuhfer conducted an impingement study (fish sucked into the screens) at the huge Detroit Edison Monroe Power Plant at the mouth of the River Raisin on Lake Erie. On a weekly basis, Andy (with assistance from other LSCFRS staff as available) shoveled buckets of dead fish out of a hopper and spent hours measuring and weighing the samples. Gizzard shad were the primary species involved. This was an extremely stinky business. Andy used a Dodge van (column stick shift) from the Waterford office for hauling the sampling gear around (tubs, measuring boards, scale), and no amount of cleaning/soap could ever remove the smell of dead shad from that vehicle. The monitoring of fish mortality at the plant continued in 1986.

In 1985, the first and only Summer Softball Challenge between Lake St. Clair Fisheries Research Station and Imlay City Fisheries (District 11) took place. LSCFRS fielded a prominent and veteran lineup including Bob Haas, Jack Hodge, and Larry Shubel. Imlay City brought their big guns featuring Bill "going deep" Deephouse, Vern "miller time" Nurenberg, and a scrappy-looking rookie named Joe Leonardi. The game took an unfortunate turn in the 3rd inning when station secretary Bonnie Menovske took a short-hop line drive to the mouth. With blood spewing everywhere, both teams decided to call it a draw.

The 1985 fall trawl survey on Saginaw Bay was conducted by the R/V Chinook. The trawls caught white perch for the first time in the Bay. In just a few years, the white perch population would explode and this new invader would become a major component of the Bay fish community.

1986-1989:

Water levels in lakes Huron, St. Clair, and Erie reached record highs in 1986, but then declined to about the long-term average by 1989. Lower water levels, combined with increased water clarity as a result of pollution abatement efforts, resulted in increased abundance of aquatic vegetation in Lake St. Clair and shallow waters of Lake Erie and Saginaw Bay. As a result of an intensive walleye fingerling rearing program, walleye abundance in Saginaw Bay was building. The walleye population in Lake Erie exploded with huge year-classes produced in 1982 and 1986 and several other good year-classes in the mix.

Photo 4: Setting Gill Nets during a 24-hour Survey on Saginaw Bay, ca. 1986 (Crew members L to R: Jack Hodge, Dave Lucchesi, Ken Koster).

Fisheries Division budgets improved in 1986 with a fishing/hunting fee increase and an accompanying increase in federal aid funding. As a result, there was an increase in surveys and vessel operations at the Lake St. Clair station. All the long-term monitoring programs continued: Lake Erie spring trap netting and walleye tagging, Saginaw Bay fall trawling, and Lake Erie fall gill netting. In addition, an intensive effort was mounted to better understand the predator-prey dynamics of walleye and yellow perch in Saginaw Bay. This effort included monthly sampling from May through October with trawls and gill nets at sites across Saginaw Bay. Diet samples were collected monthly with a 24-hour survey that included trawls every 3 hours and concurrent 6-hour gill net sets (Photo 4, above). During the monthly 24-hour diet sampling, two crews manned the *Channel Cat*, with one shift working from 3pm to 7am, and the second shift working from 7am to

10pm. Several graduate students also participated in the field sampling and conducted research projects in conjunction with the predator-prey study, including Dave Lucchesi, Ron Salz, and Jeff Schaeffer.

The Saginaw Bay predator-prey survey generated a large volume of lab work. In addition to a heavy load of scale pressing and aging, the contents of large numbers of yellow perch stomachs had to be examined, identified, and enumerated. Yellow perch were also “cooked” with drying ovens to measure water content of the viscera and somatic tissue. This lab work required an intricate accounting system of custom-made aluminum foil “boats” and precise weight measurements. It also generated a uniquely unpleasant odor in the lab each time a new batch of fish was placed in the drying ovens. State workers were hired to help with both the field work and lab work, and for the first time, 2 research technicians were on the staff at the Lake St. Clair station (John Clevenger joined the staff before the 1986 field season began).

Photo 5: View heading west on flooded South River Road, just outside the Harley Ensign Boat Access Site during the record high water levels of 1986.

Great Lakes water levels were at record highs in 1986. That summer and fall, employees at the Lake St. Clair station often found South River Road flooded (Photo 5, above). When the wind blew from the south or southeast, the waves would actually roll across South River at the Blue Boat bar and lap at the porches of the homes on the north side of the road. Those homes had sandbag barriers along the road to try and hold back the water. Some employees with small vehicles had to park further inland and shuttle back and forth to the fish station with a DNR truck that was kept at the gas station at Jefferson and South River Road. Some of the station staff, including some Michigan Civilian Conservation Corps workers actually worked in St. Clair Shores to help residents there with filling and placing sandbags to protect their properties.

During the percid survey on Saginaw Bay in July 1987, the *Channel Cat* was moored at the USACOE dock on a small, dredged channel off the east side of the Saginaw River (now Coast Guard property) near the power plants. The *Channel Cat* would raft off the starboard side on some old barges stored at the site, with the bow facing out towards the river. One morning, while getting underway, Dave Lucchesi (UM master's graduate student) was on the barge and pushing off. Apparently, after giving the vessel a hard push, he forgot to step across onto the *Channel Cat* and was left on the barge. After Assistant Captain Jack told Dave he had better jump or he would be left because Captain Shubel would not come back for him, Dave took a step back and made a mighty leap and landed flat against the side of the *Channel Cat* cabin with a terrible thud which was loud enough to get Captain Shubel's attention. Larry took the engines out of gear and all he could see from the cabin was two arms hanging off the starboard side of the cabin. Dave's grip eventually slipped and he ended up hanging by his arms from the walkway alongside the cabin, where he was helped back aboard by the crew, wet and embarrassed, but otherwise intact.

Mike Thomas, then a new management biologist at the Pontiac District Office volunteered to help out with the 24-hour percid diet sampling on Saginaw Bay during October 1987. Mike was assigned to the night shift and fondly recalled that long night was a blur of trawling and gill netting. The small mesh gill nets were loaded with longnose gar and channel catfish and extracting them from the twine was brutal. In between pulling trawls and lifting gill nets, the crew would try to catch a little sleep curled up on the cold steel floor of the *Channel Cat* cabin.

In 1988, a new federal aid funded mayfly project (Study 456) was initiated at the Lake St. Clair Station. This project aimed to help speed up the recolonization of large burrowing mayflies in Saginaw Bay, where historically they had been abundant, but crashed due to poor water quality in the 1950's. Bill Bryant was the lead biologist on this project and pioneered the technique of collecting fertilized eggs from females during the evening mating swarms at Lake St. Clair. The fertilized eggs were then transported to Saginaw Bay and "stocked" at Au Gres on the west side of the Bay and near Wildfowl Bay on the east side. From 1988 to 1991, over 635 million eggs were transferred from Lake St. Clair to Saginaw Bay. While the success of the stocking effort was never verified with a field survey, Bill did receive many letters from residents in the Au Gres area reporting mating swarms of large mayflies.

With the conclusion of the Saginaw Bay predator-prey study in 1988, the *Channel Cat* returned to a "normal" cruise schedule in 1989. This included the long-term surveys on Lake Erie (spring trap net and fall gill net), as well as the annual fall Saginaw Bay trawl survey. In addition, in mid-May, 1989, Bob designed a unique study to evaluate the efficiency of the standard 10m headrope bottom trawls by enclosing a portion of Anchor Bay inside a large blocking net (called the Ha net), seeding the enclosure with a known number of tagged yellow perch, and then trawling inside the enclosure and recapturing some of the marked fish. The planned length of the enclosure was ¼ mile, to allow room for the *Channel Cat* to drag the trawl at least 5 minutes. By all accounts, deploying and retrieving the blocking net was a frustrating endeavor, made worse by the current in Anchor Bay and spiced up by boat traffic. Few perch were recaptured during the trawling trials, leading the crew to suspect that they were escaping from the enclosure in locations where the blocking net was not firmly anchored on bottom due to vegetation or other debris.

White perch catch rates in 1989 exploded to the highest level ever recorded by the fall survey on Saginaw Bay, with over 2,300 caught per 10-minute tow. Yellow perch catch rates were also high, continuing a period of very high perch abundance in the Bay since the mid-70's. This trend would change dramatically in 1990.

1990-1995:

In 1988, zebra mussels were first detected in Lake St. Clair. Within a few years, the invasive mussel had spread to Lake Erie and Saginaw Bay. The closely related invasive quagga mussel was first documented in Lake Erie in 1989. As their combined biomass exploded, filter-feeding by zebra and quagga mussels magnified the ongoing trend of increasing water clarity in the Great Lakes. Water levels during the first half of the 1990s were near or slightly above the long-term average. In 1990, round and tubenose gobies were first detected in the St. Clair River. By 1993, the round goby had expanded to Lake St. Clair and then Lake Erie. High walleye abundance in Lake Erie drove a spike in fishing effort that peaked at over 2 million angler hours in 1988 and then declined to less than a half-million hours in 1991. At Saginaw Bay, the walleye population was well established, but recruitment remained limited and largely driven by the ongoing fingerling stocking program. Saginaw Bay yellow perch abundance declined dramatically in 1990 and remained at reduced levels for the rest of the 1990's. The white perch and zebra mussel invasions were likely contributing factors in the reduced recruitment and survival of yellow perch in the Bay.

In the *Channel Cat* log, Captain Shubel noted that zebra mussels were fouling the trap nets set off Monroe in April 1990. This was the first record of zebra mussels on the trap nets during the annual spring survey at Lake Erie. The zebra mussels were firmly anchored on the lead lines on the bottom of the nets and really tore up the gloves of the crew.

In 1990, Bob Haas initiated a new federal aid funded project (Study 470) at the LSCFRS. This study was designed to document and compare the physical and biological conditions present at the mouths of 5 Great Lakes walleye spawning tributaries. Samples were collected weekly at the mouths of three tributaries supporting large walleye spawning runs (Saginaw, Thames, and Maumee rivers) and two tributaries with small walleye spawning runs (Clinton and Huron rivers). The field work, which included benthos, water, and plankton sampling was done with the 18' Schafer work boats. The field crews logged many hours trailering the work boats from the Station to Bay City on the north end and Toledo on the south end. Field sampling for this project continued through 1994. The study results indicated that the Clinton and Huron river estuaries were less hospitable for larval walleye than the conditions found in the estuaries of the good walleye rivers. Bob even conducted a walleye larvae survival experiment in large pens in the Clinton River mouth that documented poor walleye fry survival due to low plankton availability and fry starvation.

Also in 1990, Bill Bryant transferred to a vacant inland biologist position at the Rose Lake Office. Bill had been a biologist at the Lake St. Clair station and crew member on the *Channel Cat* since 1970. Bill retired from the Rose Lake management biologist position a few years later.

In 1991, two ponds were excavated on the eastern-most end of the Harley Ensign site by the Fisheries Division large equipment crew from the Rose Lake warehouse (Photo 6, next page). Fences were erected to keep the public out and docks and enclosures were constructed for a thesis project investigating the effect of zebra mussels on benthic invertebrates and yellow perch growth. The study showed that yellow perch growth was faster when zebra mussels were present, likely as a result of an increased abundance of benthic food items such as amphipods.

In August 1992, Mike Thomas transferred from his biologist position at the Lake Erie Management Unit into the vacant research biologist position at Lake St. Clair. Mike would serve as a research biologist at the Station until his retirement in October 2016.

Photo 6: Research ponds constructed during summer 1991 at the east end of the point at the Harley Ensign Boat Access Site. Technician Ken Koster is visible on the dock.

A new trawl survey was begun on Lake St. Clair in 1993 to collect yellow perch diet and growth data to compare with the yellow perch data collected from Saginaw Bay perch during the annual fall trawl survey. Trawling was conducted monthly at Lake St. Clair and included 24-hour sampling for diet to estimate consumption. Sampling in 1993 was the basis for an Oakland University master's (MS) thesis project. The survey was continued in 1994 and eventually evolved into a federal aid project in 1996.

In 1994, a new fisheries assistant position was created for the vessel crew. This position was a permanent-intermittent position with a 2-month layoff during the winter. Sarah Thayer was hired as the first fisheries assistant for the *Channel Cat*. Sarah served in this role for the 1994 and 1995 field seasons. She then returned to graduate school and completed her doctoral degree at Michigan State University with a dissertation that focused on Saginaw Bay yellow perch population modeling. Eventually, Sarah hired in as a research biologist at the Charlevoix Research Station and managed the statewide creel survey program for several years.
During April 1994, adult walleye caught in the survey trap nets off Monroe were transferred from Lake Erie into the research ponds at the Harley Ensign site to evaluate jaw tag loss. To keep the walleye from starving in the small ponds, forage fish had to be added to the ponds periodically. Fathead minnows from ponds at Michigan State were added several times. A large hatchery truck of brown trout "culls" from a DNR hatchery were added to the mix. Caspian and common terns swarmed over the ponds in a feeding frenzy after the trout stocking. The walleyes were seined out of the ponds in October and checked for tag loss. Jaw tag loss was zero, but some of the visible implant tags were shed.

During June 1994, an extraordinary event occurred when huge volumes of aquatic macrophytes piled up along the west and south shores of Lake St. Clair. In many locations along the shoreline in Harrison Township and St. Clair Shores, solid mats of vegetation extended outward from the seawalls over 200 feet. With the summer heat, the vegetation quickly became a stinking, rotting, mess and of course, a huge public relations storm erupted. In most cases, the large volume of vegetation was wedged along the shoreline and had to be physically removed by excavators. The

state purchased 2 large aquatic vegetation harvesters to help “control” nuisance plants. These harvesters were used sporadically for vegetation removal in limited areas along the shoreline for a few years. One positive result of the Lake St. Clair plant disaster of 1994 was an increased public concern for water quality in Lake St. Clair and the surrounding watershed.

In fall 1994, the *Channel Cat* was scheduled to have both engines rebuilt in Port Dover, Ontario. The vessel was hauled out at Sundog Marina on the Clinton River. Don Schmidt of Michigan Marine Salvage and his crew removed the Detroit Diesels and then reinstalled them when they were returned after the rebuild in Port Dover. The vessel was not ready for service until early May, so the 1995 spring Lake Erie trap net survey was started by setting and lifting 2 trap nets with one of the 18’ work boats. Once the *Channel Cat* was up and running, she headed down to Monroe and set trap nets on May 8th.

Two collaborative studies with scientists from the federal Great Lakes Science Center in Ann Arbor were initiated in 1995. In response to the plant mess in 1994, the first study focused on assessing the condition of the aquatic plant community in Lake St. Clair. The objective of the second collaborative study was to measure the abundance of burrowing mayflies in the lake. This study was based on repeated ponar samples collected at fixed sites around the lake during spring, summer, and fall. The *Channel Cat* served as the sampling platform for both studies.

In July 1995, the *Channel Cat* headed down to Lake Erie for a special trawl mensuration exercise that also included vessels from the Ontario Ministry of Natural Resources, the Ohio Department of Natural Resources, and Pennsylvania Fish and Boat Commission. The vessels trawled side-by-side to establish fishing power correction factors. Scanmar equipment was used to measure the trawl dimensions while fishing. The exercise was successful and eventually allowed direct pooling of trawl catch data for the Ontario and Ohio vessels that conduct the annual summer interagency trawl survey on waters of the western basin.

During fall sampling for the mayfly study in 1995, biologist Mike Thomas stepped off the back of the Channel Cat while retrieving the ponar dredge. He recalled plunging well below the surface and realizing that he was still holding onto the ponar line. He quickly released his grip and kicked hard for the surface. Crew members Jack Hodge and Ken Koster were waiting for him to break the surface and quickly pulled him aboard. Mike never stepped off the back of the vessel again. At this time, wearing life preservers while working on the vessel was not the norm. Use of personal flotation devices would not become a safety requirement on the vessel until 2006.

From 1991 to 1995, the annual fall Lake Erie gill net survey included comparison sets of both the standard multifilament nets and “new” monofilament nets. The monofilament nets were the new design used by the Ontario Partnership Index survey and also being adopted by the Ohio DNR for their gill net survey. After 5 years of comparison, the Michigan DNR decision was to continue fishing the old standard multifilament gill nets. The vessel crew was pleased by this decision as the monofilament nets were considered to be fragile, difficult to work with, and more prone to loading up with net scum.

1996-1999:

During the last half of the 1990’s, filtering by zebra and quagga mussels combined with ongoing pollution abatement efforts resulted in continuing increases in water clarity. As a result, biological responses in many areas of the Great Lakes included recovering benthic invertebrate communities, expanding submerged aquatic plant communities, and increasing populations of pollution intolerant fish species. In some cases, like in the St. Clair/Detroit River system, clearer water favored increasing populations of northern pike, muskellunge, and smallmouth bass, while

walleye abundance declined. The Thames River walleye population crashed and Lake Erie walleye abundance declined too, as recruitment became more sporadic.

The Saginaw Bay fish community assessment study continued with annual trips to the Bay for trawling in September or October and occasional summer trawling as well. The long-term Lake Erie spring trap net and fall gill net surveys also continued annually. In 1996, Roy Beasley transferred into the Station fisheries assistant position. Roy had been working as the Lake Erie creel survey fisheries assistant. Roy would work his way up thru the ranks, becoming the *Channel Cat* assistant captain in 1999 and boat captain in 2012.

Focused effort was undertaken in 1996 to begin assessment of the status of lake sturgeon in the St. Clair system. By trial and error, setlining with round gobies was found to be a productive technique for sampling lake sturgeon in the St. Clair River. Many alternative baits were fished on the setlines, including some intentionally rotted material, but round gobies proved to be far more productive than any other bait. Trawling in the US waters of the lake south of Huron Point proved to be surprisingly effective as well. In fact, there wasn't a large holding tank on board the *Channel Cat* during one of the first sturgeon trawling efforts, so the sturgeon had to be stuck head down inside several smaller tubs (Photo 7, below). Based on these successful efforts, a sturgeon assessment project (Study 491) began in 1997.

Photo 7: Unexpected success trawling for lake sturgeon on Lake St. Clair in 1996 resulted in the fish being held in small tubs on the deck with the deck hose providing fresh water. A large water tank was added to the standard sturgeon survey gear for subsequent trawling work. Note the small fish in the tubs to the left as the standard bottom trawl was used for sampling sturgeon until the larger mesh trawl was constructed in 1998.

Also in 1996, a new trawl survey was begun on Lake St. Clair to monitor the status of the fish community. The study design called for trawling monthly at locations all across the lake, including shallow water sites sampled with a small trawl pulled behind one of the Schafer boats. Over 72,000 fish comprising 49 species were collected from a total of 202 trawl tows during this survey in 1996.

Field sampling in 1997 included the long-term Lake Erie spring trap net survey in April followed by some experimental trap net sampling in Anchor Bay in May. The objective of the Anchor Bay trap netting was to catch yellow perch for tagging and the catches were not very good. In late May, Captain Larry Shubel retired after working on the *Channel Cat* since 1971. Assistant Captain Jack Hodge filled in as acting Captain.

The sturgeon setline survey got underway in late May and continued thru mid-June. A UM graduate student telemetry project tracking adult sturgeon in the St. Clair River and Lake St. Clair was piggy-backed onto the setline survey. The sonic implanted fish were actively tracked using a directional hydrophone deployed at various times from the 18' work boat or the *Channel Cat*. This was interesting, but often tedious work. Boat traffic and wave action both resulted in noise interference that greatly reduced the ability of the crews to locate the sonic tagged fish. Even so, implanted fish were easily located in the St. Clair River, and often found in the "Sturgeon Central" area of the US waters of Lake St. Clair between Huron Point and the Old South Channel Lights.

Other sampling during the 1997 field season included July and September trawl surveys on Saginaw Bay, sturgeon trawling and tracking on Lake St. Clair in August, the monthly Lake St. Clair fish community trawls, and the annual fall walleye index gill net survey at Lake Erie in early October. Sturgeon telemetry tracking continued thru October. The vessel was hauled out for the winter at Sundog Marina on November 26th.

With an early spring in 1998, the *Channel Cat* was launched on March 18th, headed to Lake Erie for the spring trap net survey on March 30th, and returned to Lake St. Clair on April 21st. The setline survey started on May 6th and ran through May 29th. The UM graduate student adult sturgeon telemetry project continued. More experimental trap netting was done on Anchor Bay in June. Trawling for fish community and perch diet surveys was done in late June. On July 1st, the *Channel Cat* headed for Saginaw Bay for a summer trawl survey and returned to the station on July 17th. The rest of July and August were spent trawling for sturgeon, tracking sturgeon, and working on an aquatic plant survey with the USGS. A new trawl with 3" mesh cod end was built by the crew and used successfully to catch lake sturgeon. This new net had the added benefit of reducing by-catch of smaller fish to near zero. September survey work included fish community and perch diet trawls early in the month and the Saginaw Bay trawl survey the last half of the month. Sometime in 1998, Jack Hodge was promoted to Boat Captain, filling the vacancy left by Larry Shubel's retirement. Technician Ken Koster filled in as acting Assistant Boat Captain until Fisheries Assistant Roy Beasley was promoted to Assistant Boat Captain in 1999.

The 1999 field season started with trap netting at Monroe followed by the sturgeon setline survey in the North Channel. Jim Boase, a new MS student at UM jumped into the collaborative telemetry project after the first student bailed out. Jim proved to be a great fit for the project. After completing his MS degree, Jim was hired by the USFWS and eventually would run the Southeast Michigan branch of the Alpena Fish and Wildlife Conservation Office. Sturgeon tracking continued throughout the field season when time and opportunity allowed.

Summer 1999 sampling including sturgeon trawling and yellow perch diel trawling in Lake St. Clair. The *Channel Cat* traveled to Saginaw Bay for a trawl survey in July, then returned to Lake St. Clair for more sturgeon trawling and plant sampling. After diel perch trawling in Anchor Bay in early September, the vessel traveled to Saginaw Bay for the annual fall trawl survey where round gobies were captured for the first time in Saginaw Bay. The vessel then returned to the Clinton River berth on September 29th. October field work included the annual Lake Erie index gill net survey and perch trawls on Lake St. Clair. The *Channel Cat* was hauled out on November 22nd and stored for the winter at Sundog Marina.

2000-2005:

Water clarity continued to increase across many areas of the Great Lakes, but harmful algae blooms began to crop up in areas like the Western Basin of Lake Erie, Saginaw Bay, and even the Ontario side of Lake St. Clair in the plume of the Thames River. These blooms were a signal that zebra and quagga mussels were having a far-reaching impact on the aquatic ecosystem of the Great Lakes. Energy flow through the food web was shifted away from the open waters of the lakes to the benthos and nearshore zones. Round goby had become an important part of the food web as many native species adapted to foraging on the zebra mussel munching fish. In lakes Huron and St. Clair, water levels dropped below the long-term mean. Fall water levels were low enough that mooring the *Channel Cat* in shallow water locations like the fuel dock at the Au Gres Yacht Club became tricky.

Spring was early in 2000. The *Channel Cat* was launched on March 21st and departed for Lake Erie on March 22nd. During the trap net survey, a total of 2,082 walleye were tagged, bringing the total number tagged at the Monroe tag site to over 44,000 since the survey began in 1978. Plant surveys were conducted off the *Channel Cat* on Lake St. Clair during June.

Photo 8: Channel Cat crew members hold a large adult lake sturgeon caught by trawling, while flushing the stomach to assess the summer diet of the fish in Lake St. Clair.

During the summer 2000 sturgeon trawling survey, an effort was made to document the diet of lake sturgeon found in the “Sturgeon Central” area. This was done by capturing sturgeon with the trawl and then back-flushing their stomach into a large tub using a hand-pump garden sprayer threaded down the esophagus (Photo 8, above). The process worked and stomach contents, including still-live mayfly nymphs, snails, zebra mussels, and amphipods were collected. However, most of the diet items were crushed and very low numbers of diet items were collected with the back-flushing technique. Huge quantities of material were collected by flushing the entire digestive track out the vent of the fish, but most of that material was highly digested and consisted mainly of crushed snails, zebra mussels, and sand and gravel. The process was hard on the fish and after a few years of pumping sturgeon stomachs, the decision was made to discontinue diet

sampling. The collaborative adult sturgeon telemetry project continued with the Station crew helping out with tracking as often as possible.

The rest of the 2000 field season sampling was conducted on schedule and included the standard annual surveys on Saginaw Bay (July and September), Lake St. Clair, and Lake Erie. During the Lake Erie gill net survey, the Ohio DNR had some vessel issues and the *Channel Cat* helped out by setting and lifting index nets for the Ohio DNR at several of their western basin sites. Ohio DNR staff rode along on some of those lifts.

During the winter of 2000-2001, the *Channel Cat* was hauled out at Mt. Clemens Marine and stored for the winter. The original plywood deck canopy was removed and replaced with a custom aluminum diamond-plate canopy. The front and port windows in the wheelhouse were also removed and replaced. The boat yard work took much longer than expected and delayed the start of the 2001 field season.

In 2001, the spring Lake Erie trap net survey was greatly reduced and delayed due to vessel repairs. The *Channel Cat* was launched on May 16th and didn't set trap nets at Monroe until May 18th. Walleye catches were low and white perch catches were high with water temperatures already over 60 degrees and as warm as 70 degrees for some of the net lifts. The survey was terminated on May 23rd. While pulling the last of the 5 trap nets, the lead got caught in the port wheel. The vessel ended up limping back into the Port of Monroe, where a dive team was called to come down and physically remove the net wound up on the port wheel. Because of the late start and short survey window, Mike and Bob decided that the data were not comparable with the long-term spring trap net data. This created the first hole in the dataset that extended back to 1978.

A new type of tag was added to the sturgeon assessment project beginning in 2001. Passive integrated transponder tags, or PIT tags, were purchased and injected into every sturgeon caught during LSCFRS surveys. PIT tags have high retention rates and greatly improved the mark-recapture data by minimizing tag loss. Originally the PIT tags were injected under the 3rd or 4th dorsal scute, but by 2002, the decision was made to inject them under the first dorsal scute.

On September 11, 2001, the *Channel Cat* was in service trawling on Lake St. Clair when Bonnie Menovske (secretary) called to inform the crew of the terrorist attack on the World Trade Center. In the days before "smart" phones, the crew members were basically off the grid while out on the water.

In 2002, Fisheries Division funded a multi-year creel survey of the Huron-Erie corridor. A bunch of creel fisheries assistants were hired to conduct on-site interviews of boat anglers. The survey also included plane flights for boat counts 5 days a week. The clerks used the LSCFRS as a base of operations. In addition to the open water boat fishery, the winter fishery was also measured for 2 winter seasons. This was the first creel survey of the system since the big Army Corps winter navigation study back in 1983-85.

The 2002 field season started early with the *Channel Cat* departing the Clinton River on March 28th for trap netting at Monroe. The vessel log noted that they broke ice on the way out of the Clinton River. The Lake Erie trap net survey ran thru the end of April. A total of 81 net lifts resulted in 2,823 walleyes tagged and released.

In 2002, the Lake St. Clair fish community survey was modified to include an annual spring trap net survey in Anchor Bay to better monitor the populations of major predators such as smallmouth

bass, walleye, northern pike, and muskellunge. The monthly lakewide trawling component of the project was reduced to spring and fall trawling at the Anchor Bay index site. The *Channel Cat* returned to Lake St. Clair from the Monroe trap net survey on May 1st and the Anchor Bay trap nets were set on May 3rd. In 64 net lifts in Anchor Bay, 397 smallmouth bass, 244 walleye, 120 northern pike, and 41 muskellunge were caught. In addition, the survey revealed a healthy channel catfish population with a high proportion of Master Angler sized fish.

The sturgeon setline survey ran from June 3rd to June 14th, followed by the spring fish community trawls on Anchor Bay on June 20th. The rest of the summer field season included lots of side-scanning to locate sturgeon and trawling to catch them for tagging. The fall Anchor Bay fish community trawl survey was conducted on August 28th. Fall field work included the annual Saginaw Bay fall trawl survey (Sept. 9 to Sept. 23) and the Lake Erie fall index gill net survey (Oct. 7 to Oct. 14). The vessel was hauled out for the winter at Mt. Clemens Marine on Dec. 2nd and the log noted skim ice and snow.

The start of the 2003 field season was delayed for the *Channel Cat* due to work at Mt. Clemens Marine. The entire electrical system was updated to better accommodate the new electronics used on the vessel. This included the expanding array of navigational electronics as well as on-board computers, digital scales, a microwave oven, and cell phone chargers.

While the *Channel Cat* was at the boat yard in April, the vessel crew teamed up with the Waterford Station crew to electrofish and tag walleye at the Huron River, below the dam at Flat Rock. Over 1,000 walleyes were caught, tagged, and released in just 5 days of shocking. A number of muskellunge were also sampled below the dam. Genetic samples would eventually show that muskies below the dam were a mixture of northern muskies (stocked upstream in the Huron River impoundments) and native Great Lakes strain fish, presumably overflow from the large muskie population in the Detroit River and Lake St. Clair. From a genetics standpoint, mingling of these strains was not desirable. Eventually, the stocking of northern strain muskellunge in the Huron River impoundments would be terminated to address this situation.

The *Channel Cat* was launched on May 5th and set trap nets at Monroe on May 8th. After poor walleye catches and warm water temperatures, the trap net survey concluded on May 20th. The vessel returned to Lake St. Clair where the trap nets were set on May 27th, about a month later than the target starting date. Smallmouth bass catches were high. Dorsal spine sections illustrated that 20-inch smallmouth bass average more than 10 years in age.

The 2003 sturgeon setline survey in the North Channel was cancelled due to the late start to the field season. The summer sturgeon trawling work on Lake St. Clair was done on schedule with a total of 38 lake sturgeon caught. The September trawl survey on Lake St. Clair was completed and spottail and mimic shiner catches were strong. Following the September trawl survey on Lake St Clair, the Channel Cat headed to Saginaw Bay for the annual fall trawl survey.

Unexpectedly, 2003 marked a major ecological milestone in Lake Huron. The adult alewife population in the lake crashed. The driving force behind the alewife crash remains uncertain, but both predation and food web changes have been implicated. In any case, the alewife crash had profound impacts on many of the fish species in the lake. For example, walleye and yellow perch spawning success and wild recruitment in Saginaw Bay exploded. Mike Thomas remembered more young-of-year walleye were caught in just a couple tows at Au Gres in September 2003 than had been caught trawling all over Saginaw Bay the previous 30 years. Young-of-year yellow perch mean catch per 10-minute tow was off the charts too. Suddenly, both walleye and perch

larvae were surviving in huge numbers in the Bay, providing strong circumstantial evidence that adult alewife predation had been devastating their survival for decades.

The creel survey continued on the St. Clair System waters in 2004. With creel workers using the office parking lot and sometimes using office space to catch up on paperwork and emails, the office was a beehive of activity on many days. While the creel survey crew were officially supervised by the Waterford Office staff, Lake St. Clair station staff were often called upon to help straighten out issues with equipment, vehicles, and personnel when the need arose.

The trap net survey in Anchor Bay, Lake St. Clair continued in 2004. Muskellunge caught in the trap nets sometimes exhibited raised red sores. Samples were sent to the Fish Health Lab at Michigan State. The testing confirmed the sores were a result of a *Piscirickettsia* bacterial infection, commonly called “muskie pox.”

After the setline survey was cancelled in 2003, due to vessel repair delays, the survey returned in 2004. Since the late 1990’s word had spread among Fisheries Division co-workers, as well as staff at other agencies, that this survey was practically a guaranteed chance to encounter live lake sturgeon up-close and personal. Not surprisingly, requests to ride-along and observe on the *Channel Cat* during the setline survey increased annually. In 2004, in addition to the *Channel Cat* crew, on the 11 days when setlines were lifted, there were an average of 3 guests on board. They represented universities (EMU and CMU), federal agencies (USGS, USFWS), Sea Grant, the Great Lakes Fishery Commission, Ohio DNR, and Michigan DNR Law Enforcement.

The 2004 spring trawling in Lake St. Clair confirmed that the 2003 year-class of yellow perch was very strong with a catch rate over 700 per tow. In September, trawling at Saginaw Bay found survival of the bumper 2003 perch year-class had been poor and few survived their first year. Alewife remained practically extinct in Lake Huron and Saginaw Bay in 2004, and although lower than in 2003, walleye and yellow perch reproductive success remained strong.

In 2004, Bonnie Menovske retired after 19 years as secretary at the station. Bonnie transferred from the Lansing Division Office to the station back in 1986. She was an excellent typist but had to learn word processing and spreadsheets as desktop computers replaced the old electric typewriters.

The *Channel Cat* starboard engine was rebuilt in winter 2005. Oil testing, a standard diagnostic procedure at this time, detected antifreeze in the oil. The rebuild was done at Mt. Clemens Marine by the Milkovich brothers.

In 2005, Patricia Fouchey was hired as the new secretary at LSCFRS. Pat came over from the Parks and Recreation Division office on North River Road where she worked part time. Pat was a master gardener and a great cook. She spoiled the station crew with monkey bread and egg casseroles.

In April, Lake Erie trap nets were fished but catch rates were notably low and clear water conditions were noted on several occasions with the nets visible from the surface. This was a condition that was inconceivable during the turbid water period of the 1980’s and 1990’s. The crew suspected fish were now able to see the nets and avoid the gear much more effectively.

In May 2005, a new vessel was added to the station equipment list. Fisheries Division purchased a new 20 foot deep-V welded aluminum hull with center console from Pacific Skiffs in Marysville, Washington. The vessel would replace the old flat-bottomed john boats that were purchased

during the winter navigation study in the mid-80's. The deep-v hull and 150 hp outboard would make it possible to safely navigate across Lake St. Clair in most weather conditions. This vessel would soon become an important platform for many of the sampling projects that did not require the deck space of the R/V *Channel Cat*. The new vessel was named the R/V *Perca* (Photo 9, below).

Photo 9: Mike Thomas and Ken Koster take the new R/V *Perca out for a test run in May 2005. The vessel would serve as a work platform for sampling on Lake St. Clair and Lake Erie for many years.*

The fall 2005 Saginaw Bay trawl survey documented continuing absence of the invasive alewife and unprecedented survival of age 0 yellow perch and walleye. In fact, after three consecutive record year-classes, the long-running walleye fingerling stocking program for Saginaw Bay was put on hold. Walleye stocking in Saginaw Bay extended back into the 1970's, but without alewife predation on the young fry, it was no longer needed.

On the return trip from the Saginaw Bay trawl survey in late September, the *Channel Cat* encountered rough seas between Port Austin and Harbor Beach. About 2 miles from the harbor, a large wave rolled over the bow and pushed in both front windows. With broken glass and water in the cabin, Captains Jack and Roy finessed the vessel the final 2 miles into port and called a glass company in Bad Axe to come out and service the windshields. Fortunately, the navigational electronics were undamaged.

The fall gill net survey on Lake Erie had a very high walleye catch rate as the 2003 year-class was one of the strongest since the 1980's. The creel survey documented a high proportion of undersize walleye in the catch due to the 15-inch size limit, as many of the 2-year-old walleye were only 13 or 14 inches long.

2006-2010:

Water clarity continued to increase across many areas of the Great Lakes reaching levels of clarity that surprised many of the biologists who had been working on these waters for decades. Quagga mussels, which can survive and reproduce with less food than zebra mussels, were now replacing zebra mussels in many areas like the deep waters of Lake Huron, the St. Clair River, and even the open waters of shallow Lake St. Clair. Energy continued to be shifted away from the open waters of the lakes to the benthos and nearshore zones. At the same time, harmful algae blooms increased in frequency and intensity in areas like the Western Basin of Lake Erie, Saginaw Bay, and the Ontario side of Lake St. Clair in the plume of the Thames River. Round goby had become an important part of the food web as many native species adapted to foraging on the zebra mussel munching fish. In lakes Huron and St. Clair, water levels remained near or below the long-term mean.

For decades, the Lake St. Clair bass fishery was regulated with a very conservative season that opened much later than the rest of the state. The opener was the 3rd Saturday in June for Michigan waters and the last Saturday in June for Ontario waters. This regulation originated during the days when taking bass home to eat was the norm for most anglers and harvesting them during spawning time was viewed as potentially detrimental to the sustainability of the population. However, bass angler behavior changed drastically over the years, and by the 1990's most bass anglers practiced strict catch-and-release. In fact, many bass anglers no longer viewed the "season" as regulating their catch-and-release activity, so bass fishing became quite common on the Michigan side of the lake during May and early June. This resulted in law enforcement issues and some angler conflicts between those adhering to the existing regulation and those intentionally catch-and-release fishing for bass before the season opener. This became a statewide issue and after much debate and report writing, Fisheries Division liberalized the bass angling season on Lake St. Clair in 2006, when a legal catch-and-release season became official. This allowed anglers to legally fish for bass beginning on April 1st, as long as the fish were immediately released.

In early April of 2006, walleye anglers on the Upper Detroit River began reporting unusual numbers of dead muskellunge drifting downstream. The reports increased as the water temperatures increased through April. The crew at the LSCFRS conducted a number of dead fish surveys during April and May and counted fish of several species including muskellunge, yellow perch, and gizzard shad. Samples were collected and tests confirmed the presence of Viral Hemorrhagic Septicemia (VHS), a new disease in the Great Lakes. Muskies seemed to be hardest hit and many of the floaters observed were very large fish.

2006 was the fifth year of the spring Anchor Bay trap net survey. Jaw tagging of SMB and walleye caught together in the nets provided a stark contrast in the migratory nature of the two species. Walleye were vagabonds, with movement far beyond Anchor Bay, while smallmouth bass were homebodies as most returns came back from Anchor Bay and very few returns were reported from outside Lake St. Clair or the St. Clair River.

The Saginaw Bay trawl survey in 2006 found walleye spawning success declined after 3 years of record high young-of-year (YOY) trawl catch rates. In fact, yellow perch YOY catch rates were also down. Alewife catch rates remained miniscule, suggesting that poor environmental conditions were the likely cause of weak percid spawning success in the Bay in 2006.

In October 2006, the wood surface of the Clinton River mooring dock for the *Channel Cat* was replaced with fresh lumber. The old lumber was showing its' age with soft spots and obvious rotting wood in several areas. Removing the old dock boards and replacing them was a big

project, and help was recruited from many sources. Ernie Kafcas, Rick Duchene, and the seasonal deer check worker pitched in along with some heavy equipment. Parks and Recreation Division also provided manpower. The Sheriff Marine Patrol shared their prison work crew as well.

During winter of 2007, three improvements were made to the *Channel Cat*. First, a spray rail plate was added to the bow, to help deflect large waves. Second, a splash guard was added to the edge of the front deck (Photo 10, below). Both of these additions were designed to prevent a reoccurrence of the windshield implosion of 2005. Third, an electric air compressor was installed that could be used to dislodge plant debris from the water intakes for the diesel engines. Plant debris was a problem on Lake St. Clair, particularly during sturgeon trawling operations when large clumps of *Chara* were sometimes retrieved with the trawl.

Photo 10: After a large wave blew in the front windows on the way back from Saginaw Bay in fall 2006, a spray rail plate and splash guard were added to the front of the Channel Cat during winter 2007.

The winter improvements to the *Channel Cat* resulted in a late start to the field season for the research vessel. While the vessel was still in dry dock in March and April, the crew again teamed up with the Lake Erie Management Unit and their shocker boat to tag walleye in the Huron River below the dam at Flat Rock. One afternoon, while tagging walleye at the Flat Rock boat ramp, an angler and his wife and young daughter stopped by to show the crew the 50-pound grass carp he had just caught at the hot water discharge at the Monroe Edison plant at the mouth of the River Raisin.

The spring trap net survey on Anchor Bay was conducted during May. A total of 47 muskellunge were caught in the trap nets, raising hopes that perhaps gametes (eggs and sperm) could be collected from survey-caught muskellunge in future years so that a Great Lakes strain of muskellunge could be produced in the Michigan DNR hatchery system. This would allow stocking

of a native strain of muskellunge in Michigan waters vs the non-native “northern” strain of muskellunge that had been stocked around the state for many years.

Trawl surveys on Lake St. Clair documented another year of strong yellow perch spawning success in 2007.

In contrast to 2006, there were no obvious disease outbreaks in 2007. However, muskellunge anglers reported that their catch rates were clearly reduced and attributed the decline to a substantial mortality from the 2006 VHS outbreak.

The 2008 field season started with the normal Lake Erie trap net survey in early April. Water clarity continued to be high with walleye catch rates well below the long-term mean. Some fouling of the nets with algae occurred, a preview of things to come in 2009.

The annual sturgeon setline survey started normally, but the *Channel Cat* blew an engine on June 6 while returning to the Station after a day of lifting setlines on the North Channel. The vessel limped back across Anchor Bay to the dock and then up the river to Mt. Clemens Marine for an engine rebuild on June 13. The vessel returned to service on July 28.

In the meantime, the sturgeon setline survey was finished using the R/V *Perca* as the work platform. The first night, only 4 setlines were fished as space and time was a concern. After that, 6 lines were fished each night. A total of 34 lifts were made with the *Perca*. During one of those lift days, Mike Thomas recalls that a large sturgeon was caught that had twisted around on the setline and wrapped the main line around its head enough to pinch the gills closed. The fish showed no signs of life once removed from the line. Space was very limited in the *Perca* compared to the *Channel Cat*, so the dead fish was placed in the big live tank just to keep it cool and out of the way. After lifting a couple more lines and processing the fish from those lines, someone noticed that the dead sturgeon was no longer dead! After about another hour in the tank, the fish had fully revived and the crew released it.

The parking lot at the station was gravel for 34 years. Despite efforts to keep the lot graded, large puddles always formed during and after rainfalls. Parks and Recreation Division staff would occasionally stop by with heavy equipment to spread gravel and fill in holes. During summer 2008, the parking lot was paved with asphalt (Photo 11, next page). Rick Duchene, heavy equipment operator for Wildlife Division, did all the prep work for the paving.

While sturgeon trawling on August 12, the port blower seized up on the *Channel Cat*. The vessel went back to Mt. Clemens Marine and was back in service six days later. There were no further mechanical issues with the vessel for the rest of the field season.

The 2008 trawl survey on Lake St. Clair caught huge numbers of yearling yellow perch, indicating the 2007 year-class was very strong.

In 2009, the spring Lake Erie trap net survey was a disaster. The nets were terribly fouled with *Lyngbya*, a nasty, cottony, blue-green algae. Hours of power spraying on the back deck of the *Channel Cat* barely touched it. The weight of the *Lyngbya* caused the nets to collapse onto the lakebed, resulting in further fouling of the mesh by zebra mussel shells. Pulling the trap nets at the end of the Lake Erie survey was always a long, dirty, messy day, but this time it was a 2-day affair and the leads were still fouled with the nasty algae. In fact, the cottony blue-green algae had to be hand-picked from the leads later in the summer after it had a chance to thoroughly dry out.

During the 2009 field season, the crew broke the 2,000 fish mark for sturgeon tagged. Recaptures were becoming much more common, especially for the setline survey. The number of angler-reported recaptures were growing too.

Photo 11: After 34 years, the parking lot at the Lake St. Clair Fisheries Research Station was paved with asphalt during the summer of 2008.

The Saginaw Bay trawl survey saw YOY walleye catch rates reach a new all-time high in 2009. An average of sixty-five age 0 walleye were caught per trawl tow. This continued the walleye resurgence begun in 2003. Based on the trawl survey, alewife remained practically extinct in Saginaw Bay. In fact, in 2009, the Saginaw Bay walleye population achieved the growth benchmark that had been set as an indicator of population recovery.
The *Channel Cat* was due for a hull ultra-sound survey in winter 2010. Roy and Jeremy Maranowski, a fisheries assistant on the *Channel Cat* who would eventually become an assistant captain, conducted the survey and found the hull was in pretty good shape. A few thin spots were repaired and the hull was repainted and ready to go. A short section of fiberglass exhaust pipe was also replaced.

Because the spring Lake Erie trap net survey was now uncertain due to heavy algae fouling of the nets in 2008 and 2009, walleye tagging in the Huron River was back on the schedule in 2010. Starting on March 10 and running through March 31, the station crew was back at Flat Rock shocking and tagging walleye below the dam. Based on spine sections, the walleye captured ranged from age 1 to age 17.

With the catastrophic algae issues of 2009 still fresh in their memories, the *Channel Cat* crew only set 2 survey trap nets off Monroe to test the waters for *Lyngbya* in April 2010. It was quickly

apparent that the situation remained about the same as the previous spring. As a result, the Lake Erie trap net survey was officially discontinued due to fouling by the blue-green algae.

The Lake St. Clair trap net survey effort was increased to determine if it was possible to capture enough spawning Great Lakes muskellunge during the survey to support an egg-take effort for the state hatchery program. Unfortunately, it seemed the more effort went into trying to catch muskellunge in the trap nets, the poorer the results. Eventually, electrofishing in the Detroit River around Belle Isle and Fighting Island would prove to be a viable source of spawning Great Lakes muskellunge. The Lake Erie management unit would lead this work, with assistance from other management units around the state as well as from research and hatchery sections. Occasionally, even old, retired fish research biologists would be recruited to help fill out a shocker boat crew during the muskie egg-take which always seemed to coincide with the Memorial Day weekend and a Gran Prix race on Belle Isle.

In summer 2010, LSCFRS secretary Pat Fouchey retired. Fisheries Division opted to leave her vacancy unfilled due to budgetary considerations. The secretarial duties were farmed out to Station personnel or passed along to administrative staff at other locations. Unfortunately, public service was greatly reduced as phone calls had to be answered by a machine and the front door was locked when station staff were in the field or away at meetings.

In late December 2010, Station Manager Bob Haas, Research Technician Ken Koster, and Wildlife Biologist Ernie Kafcas all retired from state service. In combination, 103 years of experience working for Fisheries and Wildlife Divisions at the Lake St. Clair Station were lost in one day. Bob Haas served as the research biologist in charge at Lake St. Clair for nearly 45 years. During his tenure, Lake Erie was declared dead and then rose again to become one of the most productive walleye fisheries in the world. Concurrently, Saginaw Bay walleye went from nearly extinct to fully recovered. The research and assessment programs started by Bob were instrumental in understanding and successfully managing these fisheries.

Appendix I: Technological Changes:

Fish age determination –
Prior to 2005, fish ages were determined using scale samples for most species. The scales were pressed into clear acetate and the impressions were examined under magnification using microfiche viewers.

In 2005, a digital image analysis system (ImagePro Plus©; version 5.1.0.20) was acquired and age determination with sectioned fin rays and spines was undertaken. In 2005, fin rays were used for age determination of muskellunge and northern pike. In 2006, fin rays or spines were used for age estimation of walleye, smallmouth bass, muskellunge, and northern pike. Fin rays were also used for age determination of trawl-caught yellow perch over 200 mm total length (TL) in 2006.

Computers -
Originally, datasheets were sent to IFR in Ann Arbor, where data cards were keypunched and then fed through the mainframe computer. This practice continued through the 70's. The design of the field data sheets for use by the Great Lakes stations was based on this card technology. The terminology of referring to the various datasheets as "card 1" or "card 2" was still used years after the punch card technology was gone.

The first computer at the LSCFRS was one Bob borrowed from Wayne State University (WSU) that used the phone line (headset on a receiver) to send data to a mainframe computer at University of Michigan or at WSU for processing. This may have been during the mid-1970's.

By 1984, during the Army Corps of Engineers winter navigation study, data were entered and summarized with 2 Apple IIe computers in the office, and data were archived on 5.25" floppy disks. At least 1 Apple computer was still in use in the early 1990's for counting and measuring zooplankton. By 1992, all biologists had a desktop computer.

Teleform, a program used to design digital forms to facilitate automated data extraction, was purchased in early 1998. This allowed data to be recorded on paper forms in the field, which were then scanned on a flatbed scanner back in the office. The data were deposited in excel files. Data were then proofed for errors by visually comparing the excel file with the original data sheets. Use of this software greatly reduced the time required for data entry and sped up the data proofing process as well. Unfortunately, the software was expensive and interest among the other stations to make a group purchase was lacking, so updated versions were not purchased. As of 2016, an archaic Dell workstation that included an old HP flatbed scanner and printer were maintained "off the grid" to allow continued used of the Teleform software.

Presentations –
The first LCD projector for PowerPoint presentations was bought in the late 1990's. Prior to PowerPoint, presentations were done using a portable overhead projector or 35mm slide projector. James Gapczynski, a technician at the Institute for Fisheries Research, had a darkroom in the basement of the IFR and was a wizard at creating slides for presentations. Gappy, as he was called, used food coloring to create colored figure slides from black and white printed charts.

Vessel Technology -
In the late 1970's, the vessel navigation aids included a magnetic compass, a paper depth plotter, a radio direction finder, and radar. A speedometer was installed in 1979. A Loran C navigation unit was added in 1986. The first GPS navigation unit was installed in 1994. It was upgraded to differential GPS in 1996.

In 1995, a life raft was purchased for the vessel. Prior to this, emergency life-saving gear was limited to flotation suits. The life raft was in a hard case and mounted on the top of the cabin roof. In 1996, this life raft was stolen off the roof while the vessel was moored at the station dock in the Clinton River. In 1998, a soft case manual life raft was purchased which was then stored inside the vessel's cabin. Space in the cabin was always at a premium. In 2008, the valise style manually-deployed life raft was replaced with another hardcase, automatic-deployed life raft that was mounted on top of the deck cover and locked whenever the vessel was moored.

In 1998 the station purchased a sidescan sonar to use for fish and habitat survey work. The unit was produced by Marine Sonics and included a torpedo like transducer, a cable, and a splash-proof self-contained computer that operated the system. The sidescan unit was sometimes used to scan trawling locations to look for snags. It also proved to be useful for locating sturgeon in the open waters of Lake St. Clair during sturgeon trawling on the lake. This unit would eventually be replaced by sidescan sonar technology built into GPS sounders on both the *Perca* and *Channel Cat*.

Before cell phones, the research vessel relied on the DNR radio system for communication with shore. The old DNR radio system and radios were not as reliable or effective as the modern State 800 Mhz radio system. Once available, cell phones quickly became the preferred method for ship-shore communication and also made it easier for family members to easily contact vessel crew members when needed.

In 2001, the station acquired a Biosonics hydroacoustic system. This equipment included 2 large transducers, 2 cables, and a laptop computer to run the system operating software. This unit was primarily used for aquatic plant survey work by the Lake St. Clair Station but was also loaned out to the Ohio DNR several times over the years for the interagency hydroacoustic fish survey on Lake Erie.